

What is claimed is:

1. An LED luminaire comprising;

an array of LEDs comprising at least one LED in each of a plurality of colors,

a condenser lens positioned to direct the combined light output of the array of LEDs to a target light guide,

a partially reflecting element positioned to reflect a portion of the light output from the condenser lens back toward the LED array, and

a light sensor positioned to intercept and measure at least a portion of the reflected light.

2. The LED luminaire of claim 1 further comprising;

means for supplying electrical current to said LED array, whereby said LEDs in each said color have a light output, and the LED array has a combined light output,

means for providing the reflected light output of each color separately to the light sensor,

means for comparing the measured light output for each color to a respective desired light output for each color, and

means for adjusting the electrical current to the LEDs in each color based on said comparison, whereby a desired combined light output may be achieved.

3. The LED luminaire of claim 2 in which the means for providing the reflected light output of each color separately to the light sensor comprises means for selectively turning off the LEDs so that the light sensor measures the light output for each color separately in a series of time pulses.

4. The LED luminaire of claim 2 in which the means for providing the reflected light output of each color separately to the light sensor comprises color filter means for selectively filtering out the light output of each separate LED color.

5. The LED luminaire of claim 4 in which the light sensor comprises an array of photodiodes.

6. The LED luminaire of claim 5 in which color filter means comprises separate color filters associated with the individual photodiodes.

7. The LED luminaire of claim 5 in which the light sensor additionally comprises a light diffuser and a light integrator.

8. An LED luminaire comprising;  
an array of LED's comprising at least one LED in each of a plurality of colors,  
a condenser lens positioned to direct the combined light output of the array of LEDs to a target light guide, and

an array of light sensors, each light sensor associated with an LED or group of LEDs, each light sensor positioned to intercept and measure at least a portion of the light output of its associated LED or group of LEDs.

9. The LED luminaire of claim 8 in which each light sensor is associated with a group of three LEDs.

10. The LED luminaire of claim 8 further comprising;  
means for supplying electrical current to said LED array, whereby said LEDs in each said color have a light output, and the LED array has a combined light output,

means for comparing the measured light output for each color to a respective desired light output for each color, and

means for adjusting the electrical current to the LEDs in each color based on said comparison, whereby a desired combined light output may be achieved.